

DOCUMENTED CHROMOSOME NUMBERS 1994:1. KARYOTYPE OF *JAIMEHINTONIA* *GYPSOPHILA* (AMARYLLIDACEAE)

ZAIMING ZHAO

Department of Botany
University of Texas
Austin, TX 78713 U.S.A.

ABSTRACT

A somatic chromosome count of the recently described *Jaimehintonia gypsophila* B.L. Turner (Amaryllidaceae) is presented, along with a photograph showing its karyotype. It has a diploid count of $2n=20$ and is comprised of three pairs of large submetacentric chromosomes, three pairs of medium metacentric chromosomes and four pairs of small chromosomes, three of these metacentric and one acrocentric.

RESUMEN

Se presenta un recuento cromosómico somático de la recientemente descrita *Jaimehintonia gypsophila* B.L. Turner (Amaryllidaceae) junto con una fotografía que muestra su cariotipo. Presenta un recuento diploide de $2n=20$ formado por tres pares de cromosomas grandes submetacéntricos, tres pares de cromosomas de tamaño medio metacéntricos y cuatro pares de cromosomas pequeños, tres de los cuales son metacéntricos y uno acrocéntrico.

INTRODUCTION

Jaimehintonia is a recently described monotypic genus of the Amaryllidaceae, tribe Allieae (Turner 1993). The single species, *J. gypsophila*, is a relatively rare edaphic endemic in to gypseous soils of northeastern Mexico. Its generic relationships are moot, but its author thought the species to be most closely related to *Androstephium* and allies, in the sense of Moore (1953).

The present paper attempts to position the genus with more certainty using karyotypic data.

MATERIALS AND METHODS

Chromosome studies were made from root tips of seeds germinated on an agar nutrient medium in a petri dish. Seeds were collected at the type locality by George S. Hinton (*Hinton et al.* 20560, TEX).

Root tips were placed in saturated 8-hydroxyquinoline solution for 4 hr, fixed in 3:1 (ethanol : acetic acid) about 4 hr, and transferred to 70% ethanol overnight. They were softened in 10% HCl at 60 C for 15 min, then squashed using standard procedures.

RESULTS

The chromosome number of this species is $2n=20$ (Fig. 1). Its karyotype can be described as follows (Fig. 2): three pairs of large submetacentric chromosomes, three pairs of medium metacentric chromosomes, three pairs of small metacentric chromosomes, and one pair of small acrocentric chromosome.

DISCUSSION

Jaimehintonia appears to have a distinctive karyotype that, along with its morphological features, supports its recognition as a distinct genus. Among the tribe Allieae, chromosome numbers of $2n=20$ are found only in two species of the genus *Muilla*, but chromosomes of the latter differ in shape from those of *Jaimehintonia*. (Both *M. maritima* [Torr.] S. Wats. and *M. transmontana* Greene have five medium to long submetacentric chromosomes, four short submetacentric, and one short nearly metacentric chromosomes; Lenz 1975.) An anomalous count of $n=20$ pairs has been reported for *Brodiaea lutea* (Lindl.) Morton var. *anilina* (Greene) Munz (Niehaus 1965), but the chromosome numbers of most taxa of *Brodiaea* are based on $x=6, 7, 8$, and 9 (Federov 1969). This, along with differences in floral morphology, appears to rule out a close relationship between *Jaimehintonia* and *Brodiaea*. In contrast, the similarity between *Jaimehintonia* and taxa of the *Androstephium* group (within the Allieae), as noted by Turner (1993), indicate



FIG.1. Microphotograph of root tip cell of *Jaimehintonia gypsophila* ($\times 1000$).



FIG.2. Karyotype of *Jaimehintonia gypsophila*, obtained from Fig.1.

that a close evolutionary relationship is probable. Unfortunately, there are no chromosome number reports for *Androstephium*.

ACKNOWLEDGMENTS

I am grateful to Dr. Guy Nesom and Dr. B.L. Turner for helpful suggestions in preparing the manuscript, and to Dr. Richard Starr for providing the nutrient medium.

REFERENCES

- FEDOROV, A.A. (ed.). 1969. Chromosome numbers of flowering plants. Acad. Sci. U.S.S.R., Moscow.
- LENZ, L.W. 1975. The chromosomes of *Bloomeria* and *Muilla* (Liliaceae) and range extensions for *Muilla coronata* and *M. transmontana*. *Aliso* 8:259–262.
- MOORE, H.E., Jr. 1953. The genus *Muilla* and its allies. *Gentes Herb.* 8:263–294.
- NIEHAUS, T.F. 1965. In: Documented chromosome numbers of plants. *Madroño* 18: 122–126.
- TURNER, B.L. 1993. *Jaimehintonia* (Amaryllidaceae: Allieae), a new genus from northeastern Mexico. *Novon* 3:86–88.